



ORIGINAL RESEARCH PAPER

Periodontology

EXCISION OF PYOGENIC GRANULOMA OF HARD PALATE WITH DIODE LASER: A CASE REPORT

KEY WORDS: Pyogenic Granuloma, Excision, Diode laser

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ABSTRACT

Pyogenic granuloma (PG) is a prevalent inflammatory hyperplasia of skin and oral mucosa which is often caused by constant low-grade local irritation, traumatic injury or hormonal factors. In many cases, gingival irritation and inflammation due to poor oral hygiene are precipitating factors. Oral PG occurs predominantly on the gingiva and rarely on the hard palate. Although surgical excision is the first choice of treatment, many other treatment modalities could be counted such as cryosurgery, intralesional steroids, neodymium-doped yttrium aluminium garnet (Nd:YAG) laser, carbon dioxide (CO₂) laser, erbium-doped yttrium aluminum garnet (Er:YAG) lasers and diode laser have been suggested. A clinical report of a 28-year-old patient with pyogenic granuloma in the hard palate is presented. The treatment plan included surgical excision of the lesion using diode laser.

Introduction:

Many types of localized reactive lesions may occur on the gingiva, including focal fibrous hyperplasia, pyogenic granuloma (PG), peripheral giant cell granuloma, and peripheral ossifying fibroma. Pyogenic granuloma (PG) is a prevalent, benign mucocutaneous lesion exhibited by an exuberant tissue, caused by a local irritation or trauma.¹⁻³ It was first described in English literature by Hullihen⁴ in 1844.

Clinically, PG appears as a sessile or pedunculated exophytic mass with smooth or lobulated surface that may easily bleed or ulcerate, and covered by yellow fibrinous membrane. The color of the lesion depends on the vascularity of the growth, so it can be red, purple or pink.^{1,3} In 75% of all cases, gingiva is the most affected site by PG. Aside from the gingiva it is also encountered on the lips, tongue, buccal mucosa and the hard palate. The maxillary gingiva is more commonly affected than the mandibular one and the anterior region more than the posterior.

Case Report:

A 28-year-old male patient reported to the Out Patient Department of Periodontology, Subharti Dental College, Meerut with a complain of localized gingival growth of hard palate for 3 months. The outgrowing mass was not painful but often bled while eating, rinsing, or sometimes spontaneously. The patient's medical history and extraoral examination were unexceptional. Intraoral examination revealed a large lobulated sessile mass on the hard palate, which was extending between the left and right maxillary central incisors. The lesion was reddish pink in color and measured approximately 5 mm x 5 mm, with soft to firm consistency. (Figure 1) The differential diagnosis comprised peripheral giant cell granuloma, peripheral ossifying fibroma, hemangioma and hyperplastic gingival inflammation.

The patient was asked to give a written informed consent for laser excision of the lesion. Following infiltration local anesthesia A Diode laser was used, at 808 nm wavelength and continuous wave mode, with a power output of 2 W and a 0.4 mm diameter fiber optic, for excising the lesion. After the laser tip was initiated by rubbing a piece of articulating paper on the fiber to pick up some pigment, the procedure began with outlining the intended incision line. Then the dots were connected to create the designed incision. When the convenient depth was reached, excision was performed by clasp the mass with a forceps, applying traction, and horizontally undermining the tissue. It took 5 minutes to complete the procedure. (Figure 2) No sutures were placed

after laser surgery and diode laser enabled optimum combination of clean cutting of tissue and hemostasis. (Figure 3)

The patient was discharged with necessary post-operative instructions; chlorhexidine mouthwash was prescribed, and a follow-up appointment within 10 days was arranged. (Figure 4)

The excised sample was stored in 10% formalin and then sent for histopathological examination. On lower magnification a large ulcerated area covered with fibrin exudate was observed. Otherwise the epithelium was acanthotic, edematous, and invaded by inflammatory cells. Underneath the squamous epithelium, numerous small endothelial lined channels in a lobular structure were seen. A mixed inflammatory cell infiltrate of neutrophils, plasma cells, and lymphocytes was noticed. The lesion had areas with fibrous appearances. The histopathology confirmed the diagnosis of pyogenic granuloma.

Discussion:

PG is a well-recognized inflammatory hyperplastic oral lesion which comprises about 1.85% of all oral pathologies, other than caries and gingivitis.⁵ Usually the lesion is neither symptomatic nor painful but minor trauma to the growth can induce significant bleeding. Moreover, PG causes functional problems with mastication, swallowing, speaking and may create esthetic problems.^{6,7} In this study the lesion was also painless though it caused discomfort and bleeding while eating, which made the patient go seeking for treatment.

PG is most commonly treated by surgical excision; but many other treatment modalities, including various types of laser, have also been successfully used.^{2,3} Laser surgery offers more benefits compared to conventional treatment modalities such as reduced bleeding, instant sterilization, reduced bacteremia, less need for sutures and/or post-surgical dressing, decreased pain and edema during and after the procedure, less wound contraction and minimal scar tissue formation, faster healing process and increased patients acceptance

Powell et al⁸ reported one of the first uses of Nd:YAG laser for excision of PG, and noticed decreased risk of bleeding in comparison to other methods along with superior coagulation characteristics; which were the reasons why they chose Nd:YAG laser.

Diode laser wavelengths are highly absorbed by pigmented tissue whereas they are poorly absorbed by teeth and bones; therefore soft tissue surgeries can be safely done close to tooth structures. In addition, Janda et al⁹ pointed out that diode laser had low thermal effect on depth of carbonized zones at the surface of the tissue in histological examination.

Recently several other researchers preferred diode laser when performing excision of PGs.^{2,3,10} In our case we chose diode laser because it ensures relatively bloodless surgical field, which is crucial in these hemorrhagic lesions, improves hemostasis and coagulation, and leaves minimal swelling and scarring after surgery.

Conclusion:

The use of diode laser in the management of intraoral PG is a safe technique with several clinical benefits; clinician should eliminate all the causative irritant and/or source of trauma, and the lesion should be excised with 2 mm margins at its clinical periphery and to a depth up to the periosteum to prevent the recurrence of PG. Even so, due to its high recurrence rate, long-term follow-up is recommended.



Figure 4: 10 days Post operative view

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Figure 1: Pre-operative view

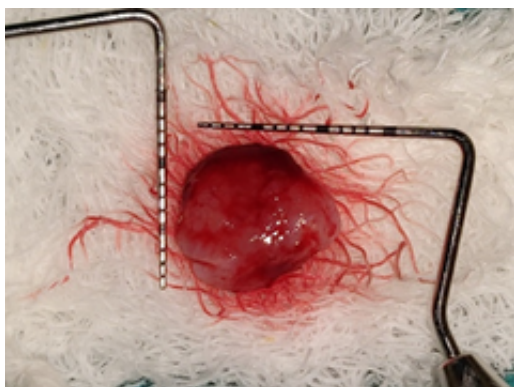


Figure 2: Dimensions of growth excised



Figure 3: Immediate Post operative view